

Claims

[c1] What is claimed is:

1. An apparatus of color conversion for converting a first color space to a second color space, wherein both the first and the second color space at least include a first color element and a second color element, the apparatus comprising:

a look-up-table for storing a relationship between the first color space and the second color space; and

a converter for converting the first color space to the second color space according to the relationship stored in the look-up-table.

[c2] 2. The apparatus of claim 1 wherein both the first color element and the second color element are one of red, green, and blue.

[c3] 3. The apparatus of claim 1 wherein the apparatus further comprises a gamma correcting circuit for converting the first color element of the first color space to the second color element of the second color space.

[c4] 4. The apparatus of claim 1 wherein the relationship stored in the look-up-table comprises a plurality of val-

ues of the first color element of the first color space corresponding to a single value of the second color element of the second color space.

- [c5] 5. The apparatus of claim 4 wherein eight values of the first color element of the first color space correspond to a value of the second color element of the second color space.
- [c6] 6. The apparatus of claim 4 wherein the values of the first color space and the second color space are 8-bit binary values.
- [c7] 7. The apparatus of claim 6 wherein the look-up-table is indexed using a number of bits of the values of the first color space.
- [c8] 8. The apparatus of claim 7 wherein the look-up-table is indexed using the five most significant bits of the values of the first color space.
- [c9] 9. The apparatus of claim 1 wherein both the first color space and the second color space include a first, a second, and a third color element and the look-up-table at least includes a first sub-table for storing a relationship between the first color element of the first color space and the second color element of the second color space, a second sub-table for storing a relationship between

the first color element of the first color space and the third color element of the second color space, a third sub-table for storing a relationship between the second color element of the first color space and the first color element of the second color space, a fourth sub-table for storing a relationship between the second color element of the first color space and the third color element of the second color space, a fifth sub-table for storing a relationship between the third color element of the first color space and the first color element of the second color space, and a sixth sub-table for storing a relationship between the third color element of the first color space and the second color element of the second color space.

[c10] 10. The apparatus of claim 1 wherein the apparatus is used in a liquid crystal display (LCD).

[c11] 11. A method of color conversion for converting a first color space to a second color space, wherein both the first and the second color space at least include a first color element and a second color element, the method comprising:
providing a look-up-table for storing a relationship between the first color space and the second color space;
and
converting the first color space to a second color space

according to the relationship stored in the look-up-table.

- [c12] 12. The method of claim 11 wherein both of the first color element and the second color element are one of red, green, and blue.
- [c13] 13. The method of claim 11 wherein the method further comprises executing a gamma correction for converting the first color element of the first color space to the second color element of the second color space.
- [c14] 14. The method of claim 11 wherein the relationship stored in the look-up-table comprises a plurality of values of the first color element of the first color space corresponding to a single value of the second color element of the second color space.
- [c15] 15. The method of claim 14 wherein eight values of the first color element of the first color space correspond to a single value of the second color element of the second color space.
- [c16] 16. The method of claim 14 wherein the values of the first color space and the second color space are 8-bit binary values.
- [c17] 17. The method of claim 16 wherein the look-up-table is

indexed using a number of bits of the values of the first color space.

[c18] 18.The method of claim 17 wherein the look-up-table is indexed using the five most significant bits of the values of the first color space.

[c19] 19.The method of claim 11 wherein both of the first color space and the second color space include a first, a second, and a third color element and the look-up-table at least includes a first sub-table for storing a relationship between the first color element of the first color space and the second color element of the second color space, a second sub-table for storing a relationship between the first color element of the first color space and the third color element of the second color space, a third sub-table for storing a relationship between the second color element of the first color space and the first color element of the second color space, a fourth sub-table for storing a relationship between the second color element of the first color space and the third color element of the second color space, a fifth sub-table for storing a relationship between the third color element of the first color space and the first color element of the second color space, and a sixth sub-table for storing a relationship between the third color element of the first color space and the second color element of the second color

space.

[c20] 20. The method of claim 11 wherein the method is used in a liquid crystal display (LCD).